

11. TEST EXECUTION....Continued

11.7 DATA PROCESSING:

The acceleration data from the accelerometers mounted on the ribs, spine and pelvis of the test dummy are processed with the FIR 100 software.

Instrumentation and sensors used must conform to the SAE J-211 (1988) recommended practice requirements. The outputs of the accelerometers installed in the dummy are then processed with the software for the Finite Impulse Response (FIR) filter (FIR 100 software). The FORTRAN program for this FIR 100 software (FIR 100 Filter Program, Version 1.0, July 16, 1990) is incorporated by reference in 572.40 of the rule. The data are processed in the following manner:

- A. Analog data recorded in accordance with SAE J-211 (1988) recommended practice channel class 1000 specification
- B. This data is then filtered with the FIR 100 Filter Program (Version 1.0, July 16, 1990). The FIR 100 Filter does the following
 - 1. Filters the data with a 300 Hz, SAE Class 180 filter
 - 2. Subsamples the data to a 1600 Hz sampling rate
 - 3. Removes the bias from the subsampled data
- C. FIR 100 Filter Program has the following characteristics:
 - 1. Passband frequency -- 100 Hz
 - 2. Stopband frequency -- 189 Hz
 - 3. Stopband gain -- 50 db
 - 4. Passband ripple -- 0.0225 db

11.8 COMPUTER DATA TAPE:

The contractor shall deliver to OVSC the final data tape or floppy disk, digital printouts, and plots within five (5) working days after the crash test.

11. TEST EXECUTION....Continued

11.9 PERFORMANCE REQUIREMENTS:

A. THORACIC TRAUMA INDEX (TTI(d))

Compute the thoracic trauma index (rounded to the nearest whole number) for the front and rear SIDs. The thoracic trauma index is computed as follows;

$$TTI(d) = \frac{1}{2} (G_r + G_{LS})$$

G_r - Is the greater of the peak accelerations of either the upper or lower rib

G_{LS} - Is the lower spine peak acceleration

TTI(d) shall not exceed –

- (1) 85g's for passenger cars with 4 side doors and MPV, truck or bus
- (2) 90g's for passenger cars with 2 side doors

B. PELVIS INJURY CRITERION

The pelvis injury criterion is the measured peak lateral acceleration of the pelvis (rounded to the nearest whole number). This shall not exceed 130 g's.

C. DOOR OPENING CRITERIA

At the completion of each test, examine the test vehicle doors to determine the following;

- (1) Whether the door(s) on the struck side of the test vehicle separated from the vehicle's main body at the hinges or latches.
- (2) Whether the door(s) on the far side (side opposite from the struck side);
 - i. Disengaged from the latched position during the side impact crash event.
 - ii. The latch separated from the striker.
 - iii. The hinge components separated from each other or from their attachment to the vehicle.
 - iv. The latch or hinge systems were pulled out of their anchorages.
- (3) On hatchback models, whether the hatch opened during the side impact crash event.

All examination results shall be recorded in the final test report

12. TEST DATA DISPOSITION

The Contractor shall make all vehicle preliminary compliance test data available to the COTR on location within one hour after the test. Final test data, including digital printouts and computer generated plots shall be available to the COTR within two working days. Additionally, the Contractor shall analyze the preliminary test results as directed by the COTR.

All backup data sheets, strip charts, recordings, plots, technicians notes, etc., shall be either sent to the COTR or destroyed at the conclusion of each delivery order, purchase order, etc.

TEST DATA LOSS

A. INVALID TEST DESCRIPTION

An invalid compliance test is one, which does not conform to all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test.

B. INVALID TEST NOTIFICATION

The Contractor shall notify NHTSA of any test not meeting all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test, by telephone, within 24 hours of the test and send written notice to the COTR within 48 hours of the test completion.

C. RETEST NOTIFICATION

The contracting Officer of NHTSA is the only NHTSA official authorized to notify the Contractor that a retest is required. The retest shall be completed within 2 weeks after receipt of notification by the Contracting Officer that a retest is required.

D. WAIVER OF RETEST

NHTSA, in its sole discretion, reserves the right to waive the retest requirement. This provision shall not constitute a basis for dispute over the NHTSA's waiving or not waiving any requirement.

E. TEST VEHICLE

NHTSA shall furnish only one vehicle for each test ordered. The Contractor shall furnish the test vehicle required for the retest. The retest vehicle shall be equipped as the original vehicle. The original vehicle used in the invalid test shall remain the property of NHTSA, and the retest vehicle shall remain the property of the Contractor. The Contractor shall retain the retest vehicle for a period not exceeding 180 days if it fails the test. If the retest vehicle passes the test, the Contractor may dispose of it upon notification from the COTR that the test report has been accepted.

12. TEST DATA DISPOSITION....Continued

F. TEST REPORT

No test report is required for any test that is determined to be invalid unless NHTSA specifically decides, in writing, to require the Contractor to submit such report. The test data from the invalid test must be safeguarded until the data from the retest has been accepted by the COTR. The report and other required deliverables for the retest vehicle are required to be submitted to the COTR within 3 weeks after completion of the retest.

G. DEFAULT

The Contractor is subject to the default and subsequent reprocurement costs for nondelivery of valid or conforming test (pursuant to the Termination For Default clause in the contract).

H. NHTSA'S RIGHTS

None of the requirements herein stated shall diminish or modify the rights of NHTSA to determine that any test submitted by the Contractor does not conform to all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test.

13. REPORTS

13.1 MONTHLY STATUS REPORTS

The contractor shall submit a Monthly Status Report to the COTR on the first Friday of every month. The Monthly Status Report shall be submitted until all vehicles or items of equipment are disposed of. Samples of the required Monthly Status Reports are contained in the report forms Section 15

13.2 APPARENT TEST FAILURE

An apparent test failure shall be communicated by telephone to the COTR within 24 hours with written notification mailed within 48 hours (Saturday and Sundays excluded). A Notice of Test Failure (see report forms Section 15) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included. In the event of a test failure, a post test calibration check of some of the critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

13. REPORTS....Continued

13.3 FINAL TEST REPORTS

COPIES

In the case of a test failure, SEVEN copies of the Final Test Report shall be submitted to the COTR for acceptance within three weeks of test completion. When there has been no indication of a test failure, FIVE copies of each Final Test Report shall be submitted to the COTR within three weeks of test completion. The Final Test Report format to be used by all contractors can be found in the "Report Section".

Contractors are required to submit the first Final Test Report in draft form within two weeks after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to PROOF READ all Final Test Reports before submittal to the COTR. The OVSC will NOT act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

REQUIREMENTS

The Final Test Report, associated documentation (including glossy color photographs and 16mm movie film) are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use DETAILED descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much DETAIL as possible in the report.

Instructions for the preparation of the first three pages of the final test report are provided below for the purpose of standardization.

13. REPORTS....Continued**FIRST THREE PAGES**

A. **FRONT COVER** – A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

(1) Final Report Number such as 214-ABC-0X-001 where

214 is the FMVSS tested, Side Impact Protection
 ABC are the initials for the laboratory
 0X is the Fiscal Year of the test program ()
 001 is the Group Number (001 for the 1st test,
 002 for the 2nd test, etc.)

(2) Final Report Title And Subtitle such as

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
 SIDE IMPACT PROTECTION**

World Motors Corporation
 2000 Ace Super 4-door sedan
 NHTSA No. CX0401

(3) Contractor's Name and Address such as

ABC LABORATORIES
 405 Main Street
 Detroit, MI 48070

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (2) AND (3)

(4) Date of Final Report completion

(5) The words "FINAL REPORT"

13. REPORTS....Continued

- (6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6111 (NVS-220)
Washington, DC 20590

13. REPORTS....Continued

- B. FIRST PAGE AFTER FRONT COVER – A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:

Approved By:

Approval Date:

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:

Acceptance Date:

13. REPORTS....Continued

- C. SECOND PAGE AFTER FRONT COVER – A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 – REPORT NO.

214-ABC-0X-001

Block 2 – GOVERNMENT ACCESSION NUMBER (Leave blank)

Block 3 – RECIPIENT'S CATALOG NUMBER (Leave blank)

Block 4 – TITLE AND SUBTITLE

Final Report of FMVSS 214 Compliance
Side Impact Protection Testing of 200X Ace Super Sedan,
NHTSA No. CX0401

Block 5 – REPORT DATE

March 1, 200X

Block 6 – PERFORMING ORGANIZATION CODE

ABC

Block 7 – AUTHOR(S)

John Smith, Project Manager
Bill Doe, Project Engineer

Block 8 – PERFORMING ORGANIZATION REPORT NUMBER

ABC-DOT-XXX-001

Block 9 – PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070

13. REPORTS....Continued

Block 10 – WORK UNIT NUMBER (Leave blank)

Block 11 – CONTRACT OR GRANT NUMBER

DTNH22-0X-D-12345

Block 12 – SPONSORING AGENCY NAME AND ADDRESS

US Department of Transportation
National Highway Traffic Safety Administration
Office of Vehicle Safety Compliance (NVS-220)
400 Seventh Street, SW, Room 6111
Washington, DC 20590

Block 13 – TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Feb. 15 to Mar. 15, 200X

Block 14 – SPONSORING AGENCY CODE

NVS-220

Block 15 – SUPPLEMENTARY NOTES (Leave blank)

Block 16 – ABSTRACT

A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Tests was conducted on the subject 200X Ace Super 4-door sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-0X for the determination of FMVSS No. 214 Side Impact Protection compliance. The test was conducted at the ABC Laboratories facility in Detroit, Michigan, on November 15, 200X.

13. REPORTS....Continued

The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 28°C. The target vehicle post test maximum crush was 250 mm at level 3. The test vehicle's performance follows:

	DRV	PAS.
Left Upper Rib (LUR) Accel., g	99	59
Left Lower Rib (LLR) Accel., g	94	97
Lower Spine (T ₁₂) Accel., g	61	69
Thoracic Trauma Index (TTI)	80	83
Pelvis (PEV) Accel., g	99	97

The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.

Block 17 – KEY WORDS

Compliance Testing
Side Impact Protection
FMVSS 214
Side Impact Dummy (SID)

Block 18 – DISTRIBUTION STATEMENT

Copies of this report are available from--

National Highway Traffic Safety Administration
Technical Information Services (TIS)
Room 5108 (NPO-230)
400 Seventh St., SW
Washington, DC 20590
Telephone No. (202) 366-2588

13. REPORTS....Continued

Block 19 – SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 – SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 – NUMBER OF PAGES

Add appropriate number

Block 22 – PRICE (Leave blank)

D. TABLE OF CONTENTS

Final test report Table Of Contents shall include the following:

Section 1 – Purpose of Compliance Test

Section 2 – Compliance Data Summary

Section 3 – Side Impact Dummy (SID) and Vehicle Test Data

Section 4 – Occupant and Vehicle Information

Appendix A – Photographs

Appendix B – Vehicle and SID Response Data

Appendix C – SID Configuration and Performance Verification Data

Appendix D – Test Equipment List and Calibration Information

13. REPORTS....Continued**SECTION 1 – PURPOSE AND TEST PROCEDURE**

This section briefly outlines the purpose for conducting the side impact test and states the appropriate test procedure followed during the test. The following is provided as an example;

This side impact test is part of the FY__ FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. _____. The purpose of this test was to evaluate side impact protection in a (description of vehicle being tested). The side impact test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-____, dated _____, 200_).

NOTE: This section should be double-spaced and requires an entire separate page.

13. REPORTS....Continued

SECTION 2 – SUMMARY OF SIDE IMPACT TEST

This section gives a summary of the side impact event. The following is an example of the content needed in this section:

A 200X Ace Super 4-door sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of ____ kph (____ mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the ABC Laboratories in Detroit, Michigan, on November 15, 200X. Pretest and post test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in this report.

A SID was placed in both the driver and left rear designated seating position according to instructions specified in the OVSC Side Impact Laboratory Test Procedure dated (fill in date). The side impact event was documented by ____ cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)

A summary of the SID configuration and performance verification test data has been included in this report along with the dummy response traces.

13. REPORTS....Continued

The following table summarizes the results of the test.

INJURY CRITERIA	FRONT SID	REAR SID
TTI (g)		
Pelvic (g)		

SECTION 3 – VEHICLE TEST DATA

This section requires the reporting of all information found in the following Data Sheets;

Data Sheet 1 – General Vehicle Test Parameter Data

Data Sheet 2 – Test Vehicle Summary of Results

Data Sheet 3 – Moving Deformable Barrier (MDB) Summary of Results

Data Sheet 4 – Post Test Observations

SECTION 4 – OCCUPANT AND VEHICLE INFORMATION

This section requires the Data Sheets and Graphs listed below;

Data Sheet 5 – SID Instrumentation Data

Data Sheet 6 – Vehicle Pre- and Post Test Vehicle Measurements

Data Sheet 7 – SID Longitudinal Clearance Dimensions

Data Sheet 8 – SID Lateral Clearance Dimensions

Data Sheet 9 – Vehicle Side Measurements

Data Sheet 10 – Vehicle Exterior Crush Profiles - All Levels

Data Sheet 11 – Vehicle Damage Profile Distances

13. REPORTS....Continued

Data Sheet 12 – Exterior Static Crush for Impactor Face

Data Sheet 13 – Test Vehicle Accelerometer Location and Data Summary

Data Sheet 14 – MDB Accelerometer Location and Data Summary

Data Sheet 15 – High Speed Camera Locations and Data

APPENDIX A - PHOTOGRAPHS

The following photographs shall be included in this appendix;

TABLE OF PHOTOGRAPHS		
No.		Page
1	Pretest Frontal View of Test Vehicle	A-1
2	Post Test Frontal View of Test Vehicle	A-2
3	Pretest Rear View of Test Vehicle	A-3
4	Post Test Rear View of Test Vehicle	..
5	Pretest Impacted Side View of Test Vehicle	..
6	Post Test Impacted Side View of Test Vehicle	..
7	Pretest Frontal View of Impactor Face	..
8	Post Test Frontal View of Impactor Face	..
9	Pretest Left Side View of Impactor Face	..
10	Post Test Left Side View of Impactor Face	..
11	Pretest Right Side View of Impactor Face	..
12	Post Test Right Side View of Impactor Face	..
13	Pretest Top View of Impactor Face	..
14	Post Test Top View of Impactor Face	..

Continued on next page

13. REPORTS....Continued

TABLE OF PHOTOGRAPHS		
No.		Page
15	Pretest Overhead View of MDB Positioned Against Impact Side of Test Vehicle at Impact Location	..
16	Pretest Occupant Compartment View Showing Both SIDs	..
17	Post Test Occupant Compartment View Showing Both SIDS	..
18	Pretest Interior of Front Door	..
19	Post Test Interior of Front Door Showing SID Impact Locations	..
20	Pretest Interior of Rear Door	..
21	Post Test Interior of Rear Door Showing SID Impact Locations	..
22	Pretest Left Side View of MDB with Impactor Face in position	..
23	Pretest Right Side View of MDB with Impactor Face in position	..
24	Post test Closeup View of Impact Point Target	..
25	Close-up View of Vehicle's Certification Label	..
26	Close-up View of Vehicle's Tire Placard Label	..
27	Post test Overhead View of the MDB and Target Vehicle	..
28	Post test of vehicle being rolled @90°,180°,270°,360°	..

13. REPORTS....Continued**APPENDIX B – VEHICLE AND SID RESPONSE DATA****TABLE OF DATA PLOTS**

Plot No.	Front & Rear SID Instrumentation Plots	
	RAW DATA (Accel - CLASS 1000 Integration - Class 180)	Page
1	Front SID Upper Rib (Y) Acceleration vs. Time	B-1
2	Front SID Upper Rib (Y) Velocity vs Time	B-2
3	Front SID Lower Rib (Y) Acceleration vs. Time	B-3
4	Front SID Lower Rib (Y) Velocity vs. Time	..
5	Front SID Lower Spine (Y) Acceleration vs. Time	..
6	Front SID Lower Spine (Y) Velocity vs. Time	..
7	Front SID Pelvic (Y) Acceleration vs. Time	..
8	Front SID Pelvic (Y) Velocity vs. Time	..
9	Rear SID Upper Rib (Y) Acceleration vs. Time	..
10	Rear SID Upper Rib (Y) Velocity vs. Time	..
11	Rear SID Lower Rib (Y) Acceleration vs. Time	..
12	Rear SID Lower Rib (Y) Velocity vs. Time	..
13	Rear SID Lower Spine (Y) Acceleration vs. Time	..
14	Rear SID Lower Spine (Y) Velocity vs. Time	..
15	Rear SID Pelvic (Y) Acceleration vs. Time	..
16	Rear SID Pelvic (Y) Velocity vs. Time	..

Continued on next page

13. REPORTS....Continued**TABLE OF DATA PLOTS**

Plot No.	Test Vehicle Instrumentation Plots (Accel - CLASS 1000 Integration - Class 180)	Page
17	Right Side Sill at Front Seat (X) Acceleration vs. Time	B-17
18	Right Side Sill at Front Seat (X) Velocity vs. Time	B-18
19	Right Side Sill at Front Seat (Y) Acceleration vs. Time	..
20	Right Side Sill at Front Seat (Y) Velocity vs. Time	..
21	Right Side Sill at Front Seat (Z) Acceleration vs. Time	..
22	Right Side Sill at Front Seat (Z) Velocity vs. Time	..
23	Right Side Sill at Front Seat Resultant Acceleration vs. Time	..
24	Right Side Sill at Rear Seat (X) Acceleration vs. Time	..
25	Right Side Sill at Rear Seat (X) Velocity vs. Time	..
26	Right Side Sill at Rear Seat (Y) Acceleration vs. Time	
27	Right Side Sill at Rear Seat (Y) Velocity vs. Time	
28	Right Side Sill at Rear Seat (Z) Acceleration vs. Time	
29	Right Side Sill at Rear Seat (Z) Velocity vs. Time	
30	Right Side Sill at Rear Seat Resultant Acceleration vs Time	
31	Rear Floorpan Above Axle (X) Acceleration vs. Time	

Continued on next page

13. REPORTS....Continued

TABLE OF DATA PLOTS
 Test Vehicle Instrumentation Plots
 (Accel - CLASS 1000 Integration - Class 180)

Plot No.		Page
32	Rear Floorpan Above Axle (X) Velocity vs. Time	..
33	Rear Floorpan Above Axle (Y) Acceleration vs. Time	..
34	Rear Floorpan Above Axle (Y) Velocity vs. Time	..
35	Rear Floorpan Above Axle (Z) Acceleration vs. Time	..
36	Rear Floorpan Above Axle (Z) Velocity vs. Time	..
37	Rear Floorpan Above Axle Resultant Acceleration vs Time	..
38	Left Side Sill at Front Seat (Y) Acceleration vs. Time	..
39	Left Side Sill at Front Seat (Y) Velocity vs. Time	..
40	Left Side Sill at Front Seat (Y) Displacement vs. Time	..
41	Left Side Sill at Rear Seat (Y) Acceleration vs. Time	..
42	Left Side Sill at Rear Seat (Y) Velocity vs. Time	..
43	Left Side Sill at Rear Seat (Y) Displacement vs. Time	..
44	Left Front Door on Centerline (Y) Acceleration vs. Time	..
45	Left Front Door on Centerline (Y) Velocity vs. Time	..
46	Left Front Door on Centerline (Y) Displacement vs. Time	..
47	Right Rear Occupant Compartment (Y) Acceleration vs. Time	..
48	Right Rear Occupant Compartment (Y) Velocity vs. Time	..
49	Right Rear Occupant Compartment (Y) Displacement vs. Time	..
50	Mid-rear of Left Front Door (Y) Acceleration vs. Time	..

Continued on next page

13. REPORTS....Continued

TABLE OF DATA PLOTS
 Test Vehicle Instrumentation Plots
 (Accel - CLASS 1000 Integration - Class 180)

Plot No.		Page
51	Mid-rear of Left Front Door (Y) Velocity vs. Time	..
52	Mid-rear of Left Front Door (Y) Displacement vs. Time	..
53	Left Front Door Upper Centerline (Y) Acceleration vs. Time	..
54	Left Front Door Upper Centerline (Y) Velocity vs. Time	B-54
55	Left Front Door Upper Centerline (Y) Displacement vs. Time	B-55
56	Mid-rear of Left Rear Door (Y) Acceleration vs. Time	B-56
57	Mid-rear of Left Rear Door (Y) Velocity vs. Time	..
58	Mid-rear of Left Rear Door (Y) Displacement vs. Time	..
59	Left Rear Door Upper Centerline (Y) Acceleration vs. Time	..
60	Left Rear Door Upper Centerline (Y) Velocity vs. Time	..
61	Left Rear Door Upper Centerline (Y) Displacement vs. Time	..
62	Lower A-Post (Y) Acceleration vs Time	..
63	Lower A-Post (Y) Velocity vs Time	..
64	Upper A-Post (Y) Acceleration vs Time	..
65	Upper A-Post (Y) Velocity vs Time	..
66	Lower B-Post (Y) Acceleration vs Time	..
67	Lower B-Post (Y) Velocity vs Time	..
68	Upper B-Post (Y) Acceleration vs Time	..
69	Upper B-Post (Y) Velocity vs Time	..

Continued on next page

13. REPORTS....Continued

TABLE OF DATA PLOTS
 Test Vehicle Instrumentation Plots
 (Accel - CLASS 1000 Integration - Class 180)

Plot No.		Page
70	Front Seat Track (Y) Acceleration vs Time	..
71	Front Seat Track (Y) Velocity vs Time	..
72	Rear Seat Track (Y) Acceleration vs Time	..
73	Rear Seat Track (Y) Velocity vs Time	..
74	Vehicle Center of Gravity (X) Acceleration vs Time	..
75	Vehicle Center of Gravity (X) Velocity vs Time	..
76	Vehicle Center of Gravity (Y) Acceleration vs Time	..
77	Vehicle Center of Gravity (Y) Velocity vs Time	..
78	Vehicle Center of Gravity (Z) Acceleration vs Time	..
79	Vehicle Center of Gravity (Z) Velocity vs Time	..
80	Vehicle Center of Gravity Resultant Acceleration vs Time	..
81	MDB Center of Gravity (X) Acceleration vs. Time	..
82	MDB Center of Gravity (X) Velocity vs. Time	..

MDB Instrumentation Plots
 Accel - Class 60 Integration - Class 180

Plot No.		Page
83	MDB Center of Gravity (X) Acceleration vs. Time	B-83
84	MDB Center of Gravity (X) Velocity vs. Time	B-84
85	MDB Center of Gravity (Y) Acceleration vs. Time	B-85

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13. REPORTS....Continued

MDB Instrumentation Plots
Accel - Class 60 Integration - Class 180

Plot No.		Page
86	MDB Center of Gravity (Y) Velocity vs. Time	..
87	MDB Center of Gravity (Z) Acceleration vs. Time	..
88	MDB Center of Gravity (Z) Velocity vs. Time	..
89	MDB Center of Gravity Resultant Acceleration vs. Time	..
90	MDB Rear (X) Acceleration vs. Time	..
91	MDB Rear (X) Velocity vs. Time	..
92	MDB Rear (Y) Acceleration vs. Time	..
93	MDB Rear (Y) Velocity vs. Time	..
Front & Rear SID Instrumentation Plots (Fir Filtered Data - Primary)		
94	Front SID Upper Rib (Y) Acceleration vs. Time	..
95	Front SID Upper Rib (Y) Velocity vs Time	..
96	Front SID Lower Rib (Y) Acceleration vs. Time	..
97	Front SID Rib (Y) Velocity vs. Time	..
98	Front SID Lower Spine (Y) Acceleration vs. Time	..
99	Front SID Lower Spine (Y) Velocity vs. Time	..
100	Front SID Pelvic (Y) Acceleration vs. Time	..
101	Front SID Pelvic (Y) Velocity vs. Time	..
102	Rear SID Upper Rib (Y) Acceleration vs. Time	..
103	Rear SID Upper Rib (Y) Velocity vs. Time	..
104	Rear SID Lower Rib (Y) Acceleration vs. Time	..
105	Rear SID Lower Rib (Y) Velocity vs. Time	..

13. REPORTS....Continued

Front & Rear SID Instrumentation Plots
(FIR Filtered Data)

Plot No.		Page
106	Rear SID Lower Spine (Y) Acceleration vs. Time	B-106
107	Rear SID Lower Spine (Y) Velocity vs. Time	B-107
108	Rear SID Pelvic (Y) Acceleration vs. Time	B-108
109	Rear SID Pelvic (Y) Velocity vs. Time	..

Front & Rear SID Instrumentation Plots
(FIR Filtered Data - Redundant)

110	Front SID Upper Rib (Y) Acceleration vs. Time	..
111	Front SID Upper Rib (Y) Velocity vs Time	..
112	Front SID Lower Rib (Y) Acceleration vs. Time	..
113	Front SID Lower Rib (Y) Velocity vs. Time	..
114	Front SID Lower Spine (Y) Acceleration vs. Time	..
115	Front SID Lower Spine (Y) Velocity vs. Time	..
116	Front SID Pelvic (Y) Acceleration vs. Time	..
117	Front SID Pelvic (Y) Velocity vs. Time	..
118	Rear SID Upper Rib (Y) Acceleration vs. Time	..
119	Rear SID Upper Rib (Y) Velocity vs. Time	..
120	Rear SID Lower Rib (Y) Acceleration vs. Time	..
121	Passenger Lower Rib (Y) Velocity vs. Time	..
122	Passenger Lower Spine (Y) Acceleration vs. Time	..
123	Passenger Lower Spine (Y) Velocity vs. Time	..
124	Passenger Pelvic (Y) Acceleration vs. Time	..
125	Passenger Pelvic (Y) Velocity vs. Time	..

13. REPORTS....Continued

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRETEST AND POST TEST CALIBRATION
(CONFIGURED FOR A [LEFT / RIGHT] SIDE IMPACT)

Date: _____

Technician: _____

TEST PARAMETER	SPECIFICATION	SID NO.:		SID NO.:	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909				
RH- Rib Height (mm)	501 - 521				
HP- Hip Pivot Height (mm)	99 ref.				
RD- Rib from Back Line (mm)	229 - 241				
KV- Knee Pivot from Back Line (mm)	511 - 526				
SW- Knee Pivot to Floor (mm)	490 - 505				
HW- Hip Width (mm)	356 - 391				
THORAX IMPACTS					
TEMPERATURE (EC)	18.9 - 25.5				
RELATIVE HUMIDITY (%)	10 -70				
PROBE SPEED (m/s)	4.27 – 4.33				
UPPER RIB (g's)	37 - 46				
LOWER RIB (g's)	37 - 46				
LOWER SPINE (g's)	15 -22				
PELVIS IMPACT					
TEMPERATURE (EC)	18.9 - 25.5				
RELATIVE HUMIDITY (%)	10 - 70				
PROBE SPEED (m/s)	4.27 – 4.33				
PELVIS (g's)	40 -60				

Continued on next page

13. REPORTS....Continued**CALIBRATION TEST RESULTS SUMMARY**
SID NUMBER: _____

Date: _____

Technician: _____

TEST	Comments
External Dimensions	
Thoracic Shock Absorber Test	
Lateral Thorax Impact Test	
Lateral Pelvis Impact Test	
Abdominal Compression Test	
Lumbar Flexion Test	

13. REPORTS....Continued**ABDOMINAL COMPRESSION TEST**

SID NUMBER: _____

Date: _____

Technician: _____

TEST PARAMETER	SPEC,	TEST RESULTS	PASS or FAIL
TEMPERATURE (°C)	18.9 -25.5		
RELATIVE HUMIDITY (%)	10-70		
FORCE @ 13mm (N)	104 - 162		
FORCE @ 19mm (N)	163 - 221		
FORCE @ 25mm (N)	222 - 280		
FORCE @ 33mm (N)	325 - 391		

LUMBAR FLEXION TEST

SID NUMBER: _____

Date: _____

Technician: _____

TEST PARAMETER	SPEC.	TEST RESULTS	PASS or FAIL
TEMPERATURE (°C)	18.9 -25.5		
RELATIVE HUMIDITY (%)	10-70		
FORCE @ 0° (N)	0 - 26.7		
FORCE @ 20° (N)	97.8 - 151.2		
FORCE @ 30° (N)	151.2 - 204.6		
FORCE @ 40° (N)	204.6 -258		
RETURN ANGLE	12° (max)		

13. REPORTS....Continued**THORACIC SHOCK ABSORBER TESTS**

SID NUMBER: _____

DAMPER IDENTIFICATION: _____

Date: _____

Technician: _____

TEST PARAMETER		SPEC.	TEST RESULTS	PASS or FAIL
TEMPERATURE (°C)		18.9 -25.5		
RELATIVE HUMIDITY (%)		10-70		
VELOCITY 3.05 m/s	FORCE (N)	836 – 1125		
	DISPLACEMENT (mm)	30 - 35		
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099		
	DISPLACEMENT (mm)	32 – 37		
VELOCITY 6.1 m/s	FORCE (N)	3741 - 4448		
	DISPLACEMENT (mm)	33 - 40		

DAMPER SETTING:

EXTERNAL DIMENSIONS
CONFIGURED FOR [LEFT / RIGHT] SIDE IMPACT
SID NUMBER: _____

Date: _____

Technician: _____

TEST PARAMETER	SPEC.	TEST RESULTS	PASS or FAIL
SH-Seated Height (mm)	889 - 909		
RH-Rib Height (mm)	502 - 520		
HP-Hip Pivot Height (mm)	99 ref.		
RD- Rib from Back Line (mm)	229 - 241		
KH- Knee Pivot from Back Line (mm)	511 - 526		
KV- Knee Pivot to Floor (mm)	490 - 505		
HW- Hip Width (mm)	356 - 391		

13. REPORTS....Continued

LATERAL THORAX IMPACT TEST
CONFIGURED FOR [LEFT/RIGHT] SIDE IMPACT
SID NUMBER: _____

Date: _____

Technician: _____

TEST PARAMETER	SPEC.	TEST RESULTS	PASS or FAIL
TEMPERATURE (°C)	18.9 -25.5		
RELATIVE. HUMIDITY (%)	10 -70		
PROBE SPEED (m/s)	4.27 - 4.33		
UPPER RIB (g's)	37 - 46		
LOWER RIB (g's)	37 - 46		
LOWER SPINE (g's)	15 -22		

LATERAL PELVIS IMPACT TEST
CONFIGURED FOR [LEFT/RIGHT] SIDE IMPACT
SID NUMBER: _____

Date: _____

Technician: _____

TEST PARAMETER	SPEC.	TEST RESULTS	PASS or FAIL
TEMPERATURE (°C)	18.9 -25.5		
RELATIVE. HUMIDITY (%)	10 -70		
PROBE SPEED (m/s)	4.27 - 4.33		
PELVIS ACCELERATION (g's)	40 -60		

13. REPORTS....Continued

POST TEST DUMMY INSPECTION LIST
SID NUMBER: _____

Date: _____

Technician: _____

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	
NECK	VISUAL, CABLE TORQUE	
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	
RIB CAGE	VISUAL, MEASURE, STIFFENERS	
STERNUM	VISUAL	
LUMBAR SPINE	VISUAL	
ABDOMEN	VISUAL	
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	
UPPER LEGS	VISUAL	
KNEES	VISUAL, STOPS, INSERTS	
LOWER LEGS	VISUAL, RANGE OF MOTION	
ANKLES	VISUAL, RANGE OF MOTION	
FEET	VISUAL, RANGE OF MOTION	
JOINTS	1 TO 2 g RANGE,	
OTHER		

13. REPORTS....Continued

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

Table 1
SID INSTRUMENTATION

	FRONT SID NO.		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
UPPER RIB			
LOWER RIB			
LOWER SPINE			
PELVIS			

	REAR SID NO.:		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
UPPER RIB			
LOWER RIB			
LOWER SPINE			
PELVIS			

REMARKS:

13. REPORTS....Continued

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

Table 2

VEHICLE INSTRUMENTATION	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill at Front Seat (X)			
Right Front Sill at Front Seat (Y)			
Right Front Sill at Front Seat (Z)			
Right Rear Sill at Rear Seat (X)			
Right Rear Sill at Rear Seat (Y)			
Right Rear Sill at Rear Seat (Z)			
Rear Floor Pan Above Axle (X)			
Rear Floor Pan Above Axle (Y)			
Rear Floor Pan Above Axle (Z)			
Left Side Sill at Rear Seat (Y)			
Left Side Sill at Front Seat (Y)			
Left Front Door Centerline (Y)			
Right Rear Occupant Comp (Y)			
Mid Rear of Left Front Door (Y)			
Left Front Door Upper Centerline (Y)			
Mid Rear of Left Rear Door (Y)			
Left Rear Door Upper Centerline (Y)			
Left Lower B Post (Y)			
Left Middle B Post (Y)			
Left Lower A Post (Y)			
Left Middle A-Post (Y)			
Front Seat Track (Y)			
Rear Seat Track (Y)			
Vehicle CG (X)			
Vehicle CG (Y)			
Vehicle (Z)			
MDB INSTRUMENTATION			
MDB CG (X)			
MDB CG (Y)			
MDB CG (Z)			
MDB Rear Frame Member (X)			
MDB Rear Frame Member (Y)			

14. DATA SHEETS

Data sheets are provided as TOOLS to document test data in the Final Test Report format outlined in the previous section. The contractor is not restricted from using other tools or expanding the data sheets provided in this section. Nevertheless, for consistency and uniformity in reporting data, the contractor must present the data in the ORDER outlined in Section 13.

14. DATA SHEETS....Continued

DATA SHEET 1
GENERAL TEST VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year /Make/Model/BodyStyle: _____
 Body Color _____ VIN: _____
 NHTSA NO.: _____ Build Date: _____

ENGINE DATA: _____ cylinders _____ CID _____ Liter _____ cc
 Engine Placement _____ longitudinal; or _____ lateral

TRANSMISSION: _____ speed _____ manual _____ automatic _____ overdrive

FINAL DRIVE: _____ rear wheel drive _____ front wheel drive _____ 4 - wheel drive

ODOMETER READING: _____ km.

OPTIONS: _____ A/C _____ power steering _____ power brakes _____ power windows

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

TIRE PRESSURE (AT CAPACITY): _____ kPa Front; _____ kPa Rear

RECOMMENDED TIRE SIZE: _____

TIRES ON TEST VEHICLE: _____ Mfr.: _____

VEHICLE CAPACITY DATA:

Number of Occupants: _____ front _____ rear _____ Total
 Type of Front Seat(s): _____ buckets _____ bench _____ split bench
 Type of Rear Seat: _____ bucket _____ bench _____ contoured
 Type of Front Seat Back: _____ fixed _____ adjustable with _____ lever or _____ knob
 Type of Rear Seat Back: _____ fixed _____ adjustable with _____ lever or _____ knob
 Vehicle Maximum Capacity Loading = _____ kg. (A)
 Number of Occupants X 68.04 kg. = _____ kg. (B)
 Vehicle Cargo Capacity (A-B) = _____ kg.

AS DELIVERED TEST WEIGHT (WITH MAXIMUM FLUIDS):

Right Front = _____ kg.	Right Rear = _____ kg.
Left Front = _____ kg.	Left Rear = _____ kg.
Total Front = _____ kg.	Total Rear = _____ kg.

TOTAL WEIGHT= _____ kg.

% of Total weight in Front = _____ % of Total weight in Rear = _____

14. DATA SHEETS....Continued

DATA SHEET 1
GENERAL TEST VEHICLE PARAMETER DATA

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

As Delivered Test Weight (with Maximum Fluids) = _____ kg. (A)
 Maximum Cargo Carrying Capacity of Test Vehicle = _____ kg. (B)
 Weight of Side Impact Dummies = _____ kg. (C)

TEST VEHICLE TARGET WEIGHT:= _____ kg. (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW+1 or 2 SID(s) + CARGO):

Right Front = _____ kg. Right Rear = _____ kg.
 Left Front = _____ kg. Left Rear = _____ kg.
 Total Front = _____ kg. Total Rear = _____ kg.

TOTAL WEIGHT = _____ kg.

% of Total weight in Front = _____ % of Total weight in Rear = _____

AS TESTED WEIGHT OF TEST VEHICLE**(1 or 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION):**

Right Front = _____ kg. Right Rear = _____ kg.
 Left Front = _____ kg. Left Rear = _____ kg.
 Total Front = _____ kg. Total Rear = _____ kg.

TOTAL WEIGHT = _____ kg.

% of Total weight in Front = _____ % of Total weight in Rear = _____

C.G. = _____ mm rearward of front wheel centerline

TEST VEHICLE ATTITUDE:

(mm)	Right Front	Left Front	Right Rear	Left Rear
As Delivered				
As Tested				
Fully Loaded				

LOCATION OF IMPACT POINT

Total Vehicle Length:

Right Side = _____ mm Left Side = _____ mm Centerline = _____ mm

Test Vehicle Wheelbase = _____ mm

Impact point is _____ mm rearward of front axle centerline

Remarks: _____

14. DATA SHEETS....Continued**DATA SHEET 1****GENERAL TEST VEHICLE PARAMETER DATA**

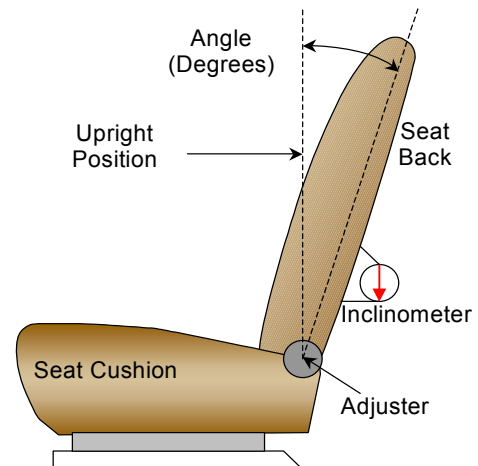
Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

NORMAL DESIGN RIDING POSITION

Describe how the driver seat was positioned to the manufacturer's designated seating angle. _____

Driver seat back angle: _____

Passenger seat back angle: _____

**FRONT SEAT ASSEMBLY****SEAT FORE/AFT POSITIONS**

Describe the fore and aft operation of the front and rear seats and explain how the seats were set to the mid position: _____

Driver seat fore/aft total travel: _____

Passenger seat fore/aft total travel: _____

Driver seat fore/aft position: _____

Passenger seat fore/aft position: _____

SEAT BELT UPPER ANCHORAGE

Describe the seat belt upper anchorages and explain how they are positioned

14. DATA SHEETS...(continued)

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

FUEL TANK CAPACITY DATA

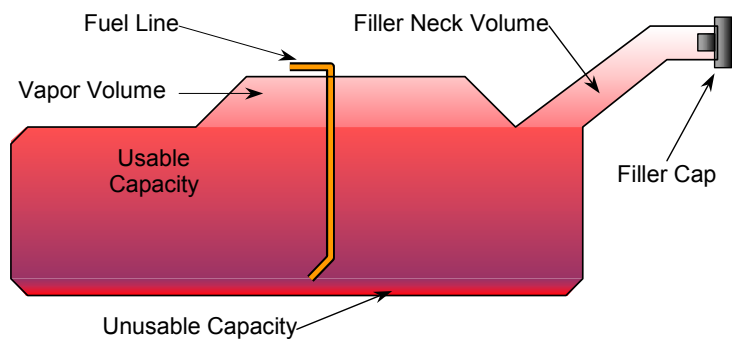
The "Usable Capacity" of the standard equipment fuel tank is: _____ liters

The "Usable Capacity" of any optional equipment fuel tank is: _____ liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirements: _____ liters

Actual amount of Stoddard solvent added to vehicle for certification test: _____ liters

The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the right rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Describe how the steering wheel and column adjustments are made: _____

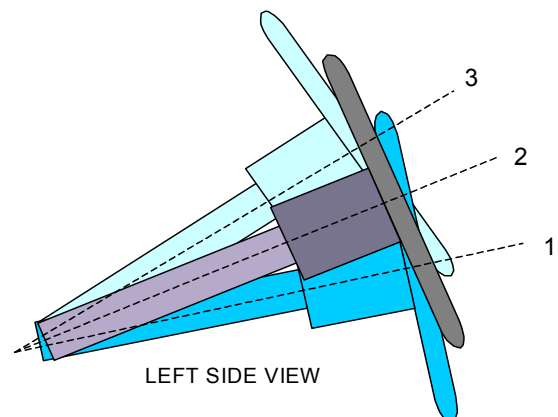
Lowermost, position 1: _____

Geometric center, position 2: _____

Uppermost, position 3: _____

Telescoping steering wheel travel: _____

Test position: _____



STEERING COLUMN ASSEMBLY

14. DATA SHEETS....Continued

DATA SHEET 2
TEST VEHICLE SUMMARY OF RESULTS

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

ACTUAL IMPACT POINT

Actual Impact Point is _____ mm [rearward or forward] of nominal impact ref. line (Lateral)

Actual Impact Point is _____ mm [above or below] nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

LEVEL 1 (_____ mm above ground) = _____ mm

LEVEL 2 (_____ mm above ground) = _____ mm

LEVEL 3 (_____ mm above ground) = _____ mm

LEVEL 4 (_____ mm above ground) = _____ mm

LEVEL 5 (_____ mm above ground) = _____ mm

Maximum Post Test Intrusion = _____ mm

OCCUPANTS:

Dummy identification

Restraint Used:

Front Passenger

SID# _____

Rear Passenger

SID# _____

INSTRUMENTATION:

Number of Vehicle Data Channels = _____

Number of Cameras: Onboard = _____ ; Offboard = _____ ; Total Cameras = _____

REMARKS:

14. DATA SHEETS....Continued

DATA SHEET 3
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

MDB SPECIFICATIONS:

Overall Width of Framework Carriage = _____ mm
 Overall Length of MDB = _____ mm (including honeycomb impact face)
 Wheelbase of Frame work Carriage (front and rear) = _____ mm
 C.G. location (rearward of front axle) = _____ mm

MDB WEIGHT:

Left Front	_____ kg.	Left Rear	_____ kg.
Right Front	_____ kg.	Right Rear	_____ kg.
Total Front	_____ kg.	Total Rear	_____ kg.

TOTAL WEIGHT OF MDB = _____ kg.

Impact Angle (MDB centerline to target vehicle centerline) = _____ degrees
 Impact Speed = _____ km/hr

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

ROW A at center of bumper level =	_____ mm
ROW B at top of bumper level =	_____ mm
ROW C at mid level =	_____ mm
ROW D at top of stack level =	_____ mm

INSTRUMENTATION:

Number of MDB data channels = _____

REMARKS:

14. DATA SHEETS....Continued

DATA SHEET 4
POST TEST OBSERVATIONS

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

VISIBLE DUMMY CONTACT POINTS:

Body Part	Vehicle interior contact area(s)	
	Front SID	Rear SID
Head		
Upper Torso		
Lower Torso		
Left Knee		
Right Knee		

DOOR OPENING DATA:

	LEFT SIDE	RIGHT SIDE
FRONT	_____	_____
REAR	_____	_____

ARM REST LOCATION:

Front – _____

Rear – _____

SEAT MOVEMENT:

Front – _____

Rear – _____

GLAZING DAMAGE:

Windshield – _____

Window – _____

PILLAR PERFORMANCE:

A-Pillar – _____

B- Pillar – _____

C Pillar – _____

SILL SEPARATION: _____

Remarks:

14. DATA SHEETS....Continued

DATA SHEET 5
SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

	FRONT SID ID# _____				REAR SID ID# _____			
	Positive		Negative		Positive		Negative	
	max (g)	time (msec)	max (g)	time (msec)	max (g)	time (msec)	max (g)	time (msec)
RIB ACCELERATIONS								
Left Upper Rib (LUR) Y								
Left Lower Rib (LLR) Y								
SPINE ACCELERATIONS								
Lower Lateral Y								
PELVIS ACCELERATIONS								
Lateral Y								

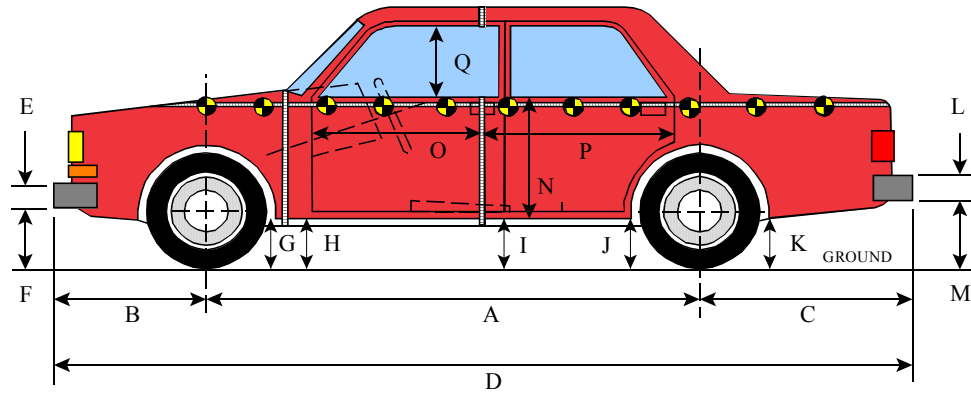
Reference: Positive Direction - Longitudinal (X) = forward
 - Lateral (Y) = to right
 - Vertical (Z) = down

REMARKS:

14. DATA SHEETS....Continued

DATA SHEET 6
VEHICLE PRETEST AND POST TEST MEASUREMENTS

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

**LEFT SIDE VIEW**

All MEASUREMENTS IN (mm) WITH TOLERANCE OF $\pm 3\text{mm}$

	PRETEST (As Delivered)	PRETEST (As Tested)	POST TEST	CHANGE
A				
B				
C				
D				
E				
F*				
G*				
H*				
I*				
J1*				
J2*				
K*				
L				
M*				
N				
O				
P				
Q				
R				
S				
T				

D = Length at Centerline

E&L = Bumper thickness

J1 = To Pinch Weld

R = Right Side Length

S = Left Side Length

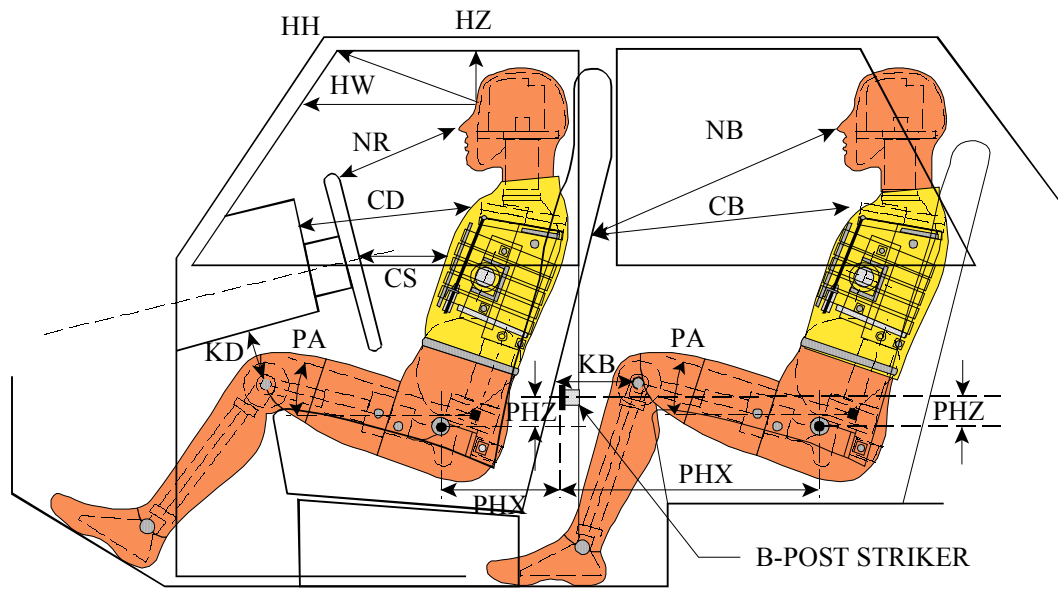
J2 = To Sill

T = Width at B -Post

* - These measurements are to be taken in the "AS DELIVERED" and in the "AS TESTED" configuration (which includes dummies, instrumentation, cameras, etc.)

14. DATA SHEETS....Continued

DATA SHEET 7 SID LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

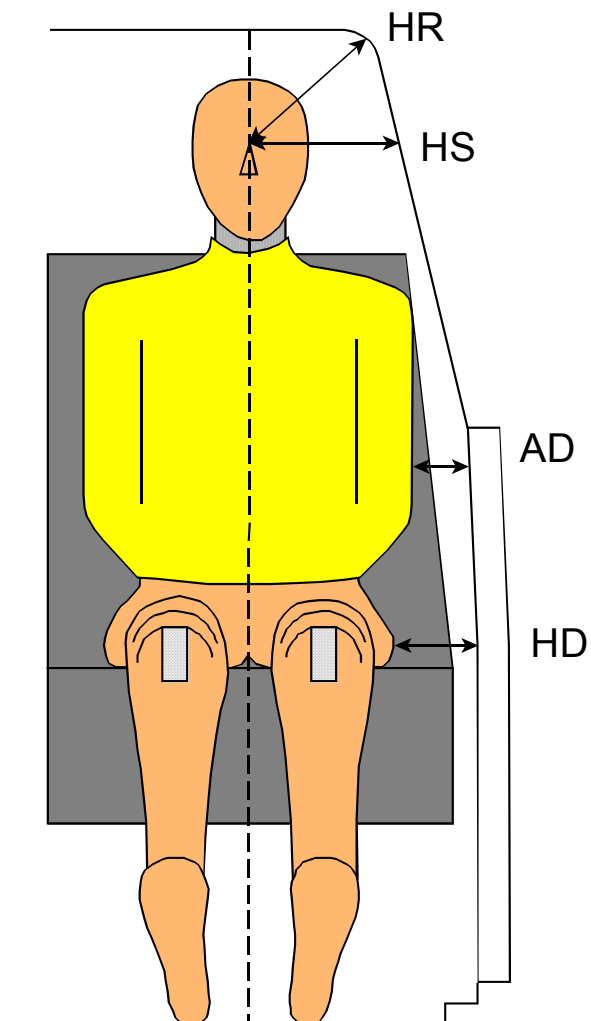
NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

NOTE: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for a 4-door vehicle would use the C post striker as a reference point.

ALL MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

MEASUREMENT (mm)	FRONT SID ID#	REAR SID ID#
HH		N/A
HW		N/A
HZ		
NR/NB		
CD/CB		
CS		N/A
NR/NB		
KDL(KDA□)/KBL(KBA□)		
KDR(KBA□)/KBR(KBA□)		
PA□		
PHX		
PHZ		

REMARKS:

DATA SHEET 8
SID LATERAL CLEARANCE DIMENSIONSALL MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

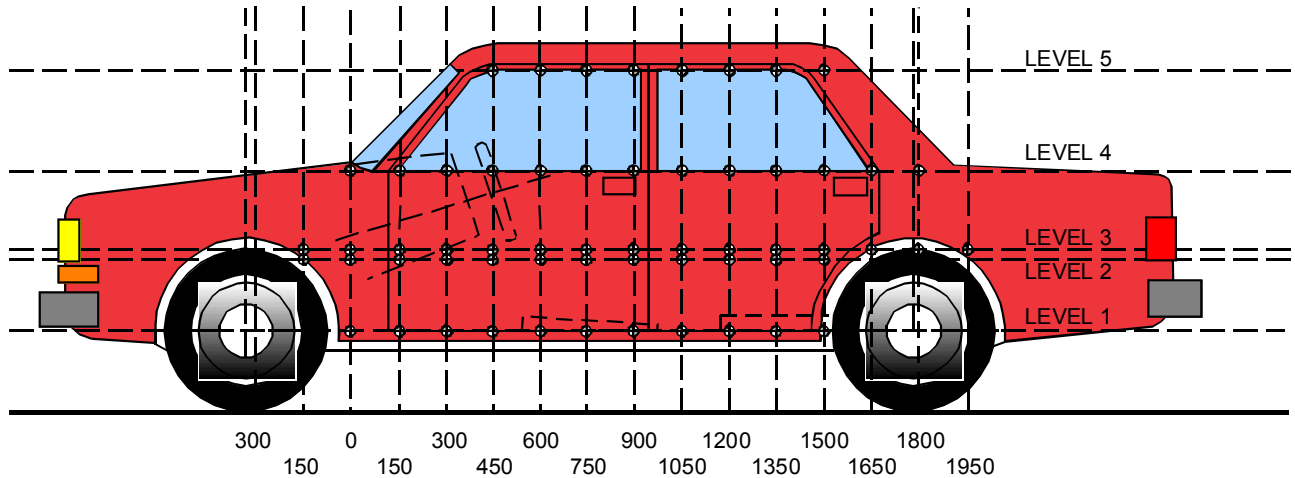
MEASUREMENT (mm)	FRONT SID ID# _____	REAR SID ID# _____
HR		
HS		
AD		
HD		

REMARKS:

14. DATA SHEETS....Continued

DATA SHEET 9
VEHICLE SIDE MEASUREMENTS

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

LEVEL 5 - WINDOW TOP
LEVEL 4 - WINDOW SILL
LEVEL 3 - MID-DOOR
LEVEL 2 - OCCUPANT H-POINT
LEVEL 1 - SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION. MEASUREMENTS ALONG THE VERTICAL 750 mm LINE SHOWN ABOVE:

LEVEL 5 @ WINDOW TOP = _____ mm

LEVEL 4 @ WINDOW SILL = _____ mm

LEVEL 3 @ MID DOOR = _____ mm

LEVEL 2 @ OCCUPANT H-POINT = _____ mm

LEVEL 1 @ SILL TOP HEIGHT = _____ mm

14. DATA SHEETS....Continued

DATA SHEET 10
VEHICLE EXTERIOR CRUSH PROFILES

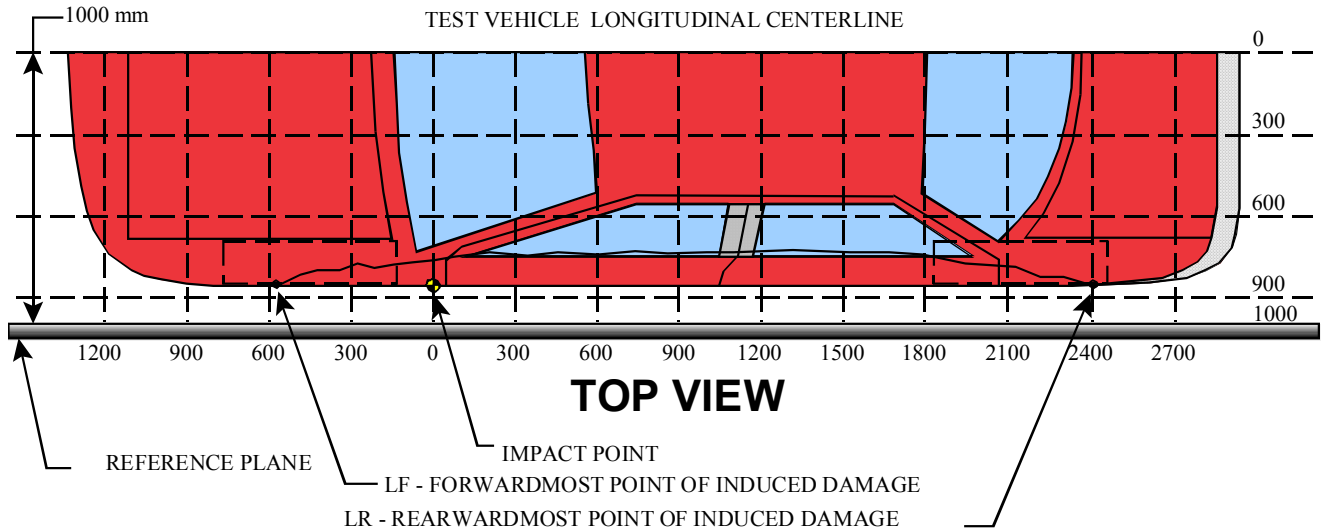
Location	Height		-900	-750	-600	-450	-300	0	150	300	450	600	750	900	1050	1200
Level 1 Side Sill		Pre														
		Post														
		Crush														
Level 2 H-Point		Pre														
		Post														
		Crush														
Level 3 Mid - Door		Pre														
		Post														
		Crush														
Level 4 Window Sill		Pre														
		Post														
		Crush														
Level 5 Window Top		Pre														
		Post														
		Crush														
Location	Height		1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850			
Level 1 Side Sill		Pre														
		Post														
		Crush														
Level 2 H-Point		Pre														
		Post														
		Crush														
Level 3 Mid - Door		Pre														
		Post														
		Crush														
Level 4 Window Sill		Pre														
		Post														
		Crush														
Level 5 Window Top		Pre														
		Post														
		Crush														

14. DATA SHEETS....Continued

DATA SHEET 11
VEHICLE DAMAGE PROFILE DISTANCES

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

NOTE: All measurements are in millimeters (mm) and should be accurate to ± 3 mm



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (—).

Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

MEASUREMENT CONVENTIONS:

Forward of impact point (towards front of vehicle) is considered negative (-)

Rearward of impact point (toward rearend of vehicle) is considered positive (+)

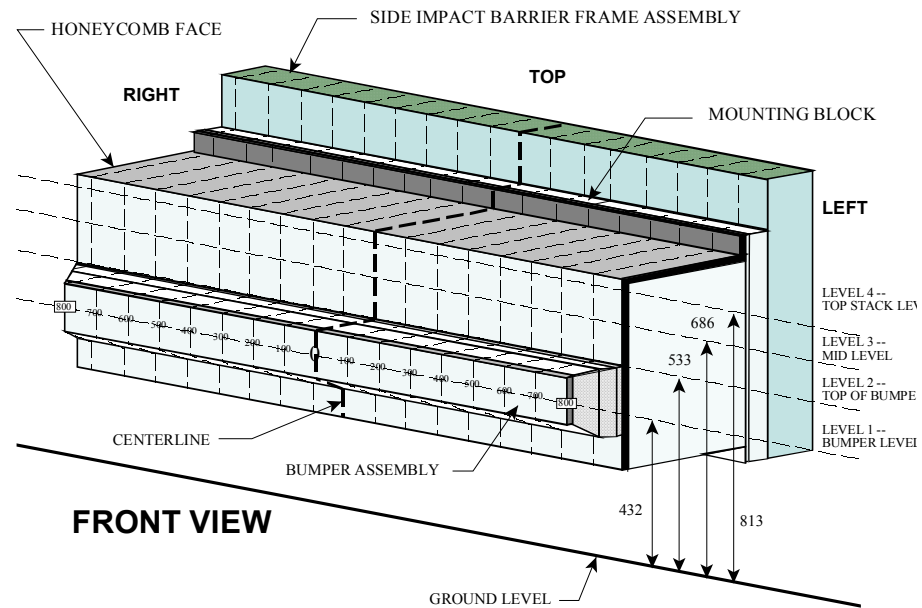
DPD MEASUREMENTS	POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1 (LR = _____ mm)			0.0
2			
3			
4			
5			
6 (LF = _____ mm)			0.0

REMARKS:

14. DATA SHEETS....Continued

DATA SHEET 12 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;

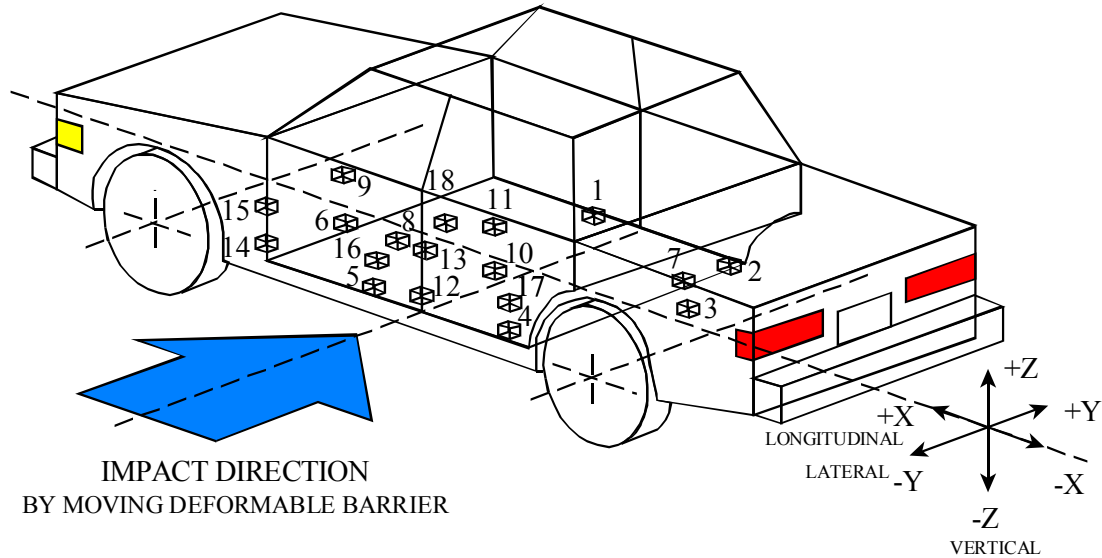


NOTE: Dimensions are shown in millimeters, mm

14. DATA SHEETS....Continued

DATA SHEET 13 TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year /Make/Model/BodyStyle: _____ NHTSA NO.: _____;



No.	Accelerometer	No.	Accelerometer
1	Right Side Sill at Front Seat	10	Mid Rear of Left Rear Door
2	Right Side Sill at Rear Seat	11	Left Rear Door Upper Centerline
3	Rear Floorpan Above Axle	12	Left Lower B Post
4	Left Side Sill at Rear Seat	13	Left Middle B Post
5	Left Side Sill at Front Seat	14	Left Lower A Post
6	Left Front Door on Centerline	15	Left Middle A Post
7	Right Rear Occ. Compartment	16	Front Seat Track
8	Mid Rear of Left Front Door	17	Rear Seat Track
9	Left Front Door Upper Centerline	18	Vehicle C.G.

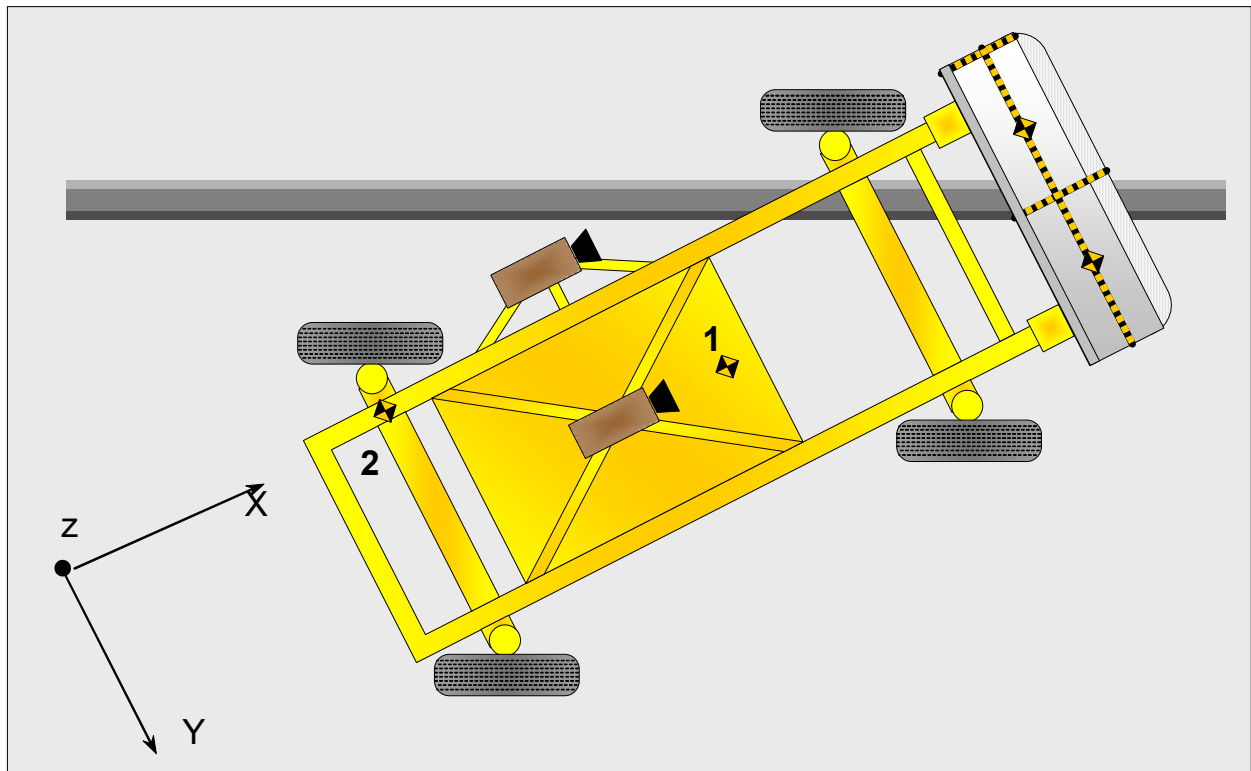
14. DATA SHEETS....Continued

NO.	LOCATION	COORDINATES (mm) \pm 3 mm				LONGITUDE (X)		LATERAL (Y)		VERTICAL (Z)		RESULTANT	
		X	Y	Z		Max (g)	Time (ms)	Max (g)	Time (ms)	Max (g)	Time (ms)	Max (g)	Time (ms)
1	Right Front Sill at Front Seat				Pos Neg								
2	Right Rear Sill at Rear Seat				Pos Neg								
3	Rear Floor Pan Above Axle				Pos Neg								
4	Left Side Sill at Rear Seat				Pos Neg								
5	Left Side Sill at Front Seat				Pos Neg								
6	Left Front Door on Centerline				Pos Neg								
7	Right Rear Occ. Compartment				Pos Neg								
8	Mid-Rear of Left Front Door				Pos Neg								
9	Left Front Door Upper Centerline				Pos Neg								
10	Mid-Rear of Left Rear Door				Pos Neg								
11	Left Rear Door Upper Centerline				Pos Neg								
12	Left Lower B-Post				Pos Neg								
13	Left Middle B-Post				Pos Neg								
14	Left Lower A-Post				Pos Neg								
15	Left Middle A-Post				Pos Neg								
16	Front Seat Track				Pos Neg								
17	Rear Seat Track				Pos Neg								
18	Vehicle C.G.				Pos Neg								

Reference: + X = Forward + Y = To Right + Z = Down

14. DATA SHEETS....Continued

DATA SHEET 14
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY



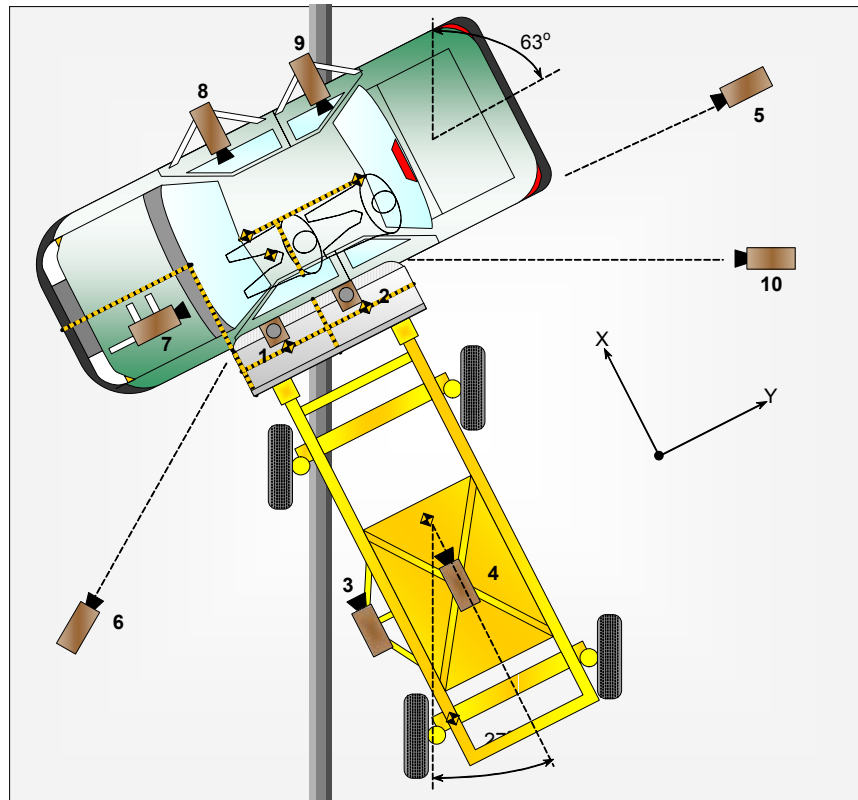
No.	Accelerometer Location	Corodinales (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG				X				
					Y				
					Z				
					RES				
2	MDB Rear				X				
					Y				

All measurements accurate to ± 3 mm

Reference: +X = Forward, +Y = To Right, +Z = Down

14. DATA SHEETS....Continued

DATA SHEET 15
HIGH SPEED CAMERA LOCATIONS AND DATA



Camera No.	VIEW	Coordinates (mm)			Angle	Lens (mm)	Min.Film Speed (fps)
		X*	Y*	Z*			
1	Overhead View of Test Vehicle						1000
2	Overhead Closeup View of Impact Plane						1000
3	MDB Onboard Closeup of Impact Point						1000
4	MDB Onboard View of Driver Dummy						1000
5	Right Side Ground Level – Overall View						1000
6	Left Side Ground Level – Overall View						1000
7	Test Vehicle Onboard Driver – Front View						1000
8	Test Vehicle Onboard Driver – Side View						1000
9	Test Vehicle Onboard Pass. – Side View						1000
10	Real-Time (24 fps) Film Coverage of Test						24

NOTE: Reference (from point of impact): +X = Forward, +Y = To Right, +Z = Down

* All measurements accurate to ± 6 mm

14. DATA SHEETS....Continued

DATA SHEET 16

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: _____ TEST DATE: _____

Vehicle _____

Year./Make/Model: _____

TEST VEHICLE IMPACT TYPE:

- Frontal (___ kph)

- Oblique (___ kph) - ° barrier face first with _____

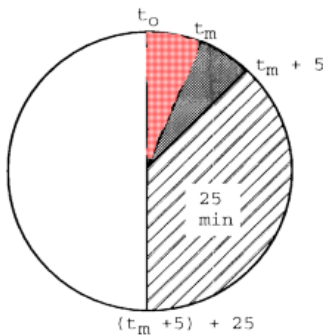
contacting the _____ side (driver/passenger)

- Rear Moving Barrier (___ kph)

- Lateral Moving Barrier (___ kph)

X Side Impact Moving Deformable Barrier (___ kph)

contacting driver side side the _____ (driver/passenger)

FUEL SPILLAGE MEASUREMENT:

1. From impact until vehicle motion ceases
2. For five minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

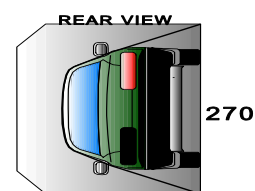
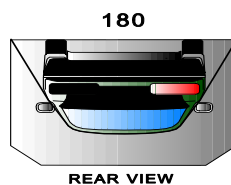
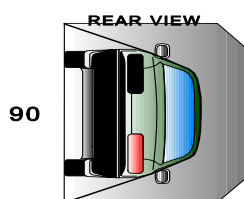
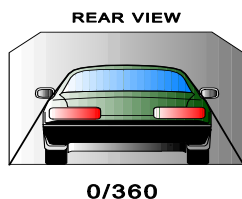
SOLVENT SPILLAGE DETAILS:

None

14. DATA SHEETS....Continued**DATA SHEET 17****ROLLOVER DATA**

Vehicle:

NHTSA No.:

**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**

Rollover Stage	Rotation Time (spec. 1 -3 min)			FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	minutes	second	s	minutes		minutes	seconds			minutes	
90° - 180°	minutes	second	s	minutes		minutes	seconds			minutes	
180°-270°	minutes	second	s	minutes		minutes	seconds			minutes	
270°-360°	minutes	second	s	minutes		minutes	seconds			minutes	

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°				
90° - 180°				
180°-270°				
270°-360°				

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	
90° - 180°	
180°-270°	
270°-360°	

15. FORMS

Forms, like Data Sheets, are provided as TOOLS to use in the exchange of data between the COTR and the contractor. Forms, unlike Data Sheets, are not PART of the Final Test Report. The contractor is not restricted from using other tools or expanding the forms outlined in this section.

1. Vehicle Condition Report

A "Vehicle Condition Report" form (example shown on next page) must be submitted to the COTR with the copies of the Final Test Report. The first page of the form shall be completed when the test vehicle arrives at the testing laboratory. The second page of the form is completed after the test. The forms shall be LEGIBLE (hand written forms are unacceptable) and COMPLETE (all information requested is filled out).

2. Test Vehicle Information

A "Test Vehicle Information" form (such as the example shown on the following pages) will be supplied by the COTR to the contractor before testing preparation. Information on this form is supplied by the automobile manufacturer to aid in the initial test set-up and shall be considered as REFERENCE MATERIAL. After vehicle preparation is complete, the Test Vehicle Information form shall be discarded.

3. Laboratory Notice of Test Failure to OVSC

A Laboratory Notice of Test Failure form shall be submitted to the COTR within 48 hours of an apparent test failure. The completed form may be transmitted by fax, electronic mail or overnight delivery.

4. Monthly Status Report

The contractor shall submit a monthly status report with all information as indicated in the example shown on the following pages.

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: _____

VEHICLE _____ NHTSA NO. _____

REMARKS: _____

Equipment that is no longer on the test vehicle as noted on previous page:

Explanation for equipment removal:

Test Vehicle Condition:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

#####

RELEASE OF TEST VEHICLE

The vehicle described above is released from _____ to be delivered to _____

Date: _____ Time: _____ Odometer: _____

Lab Representative: _____
Signature Title

Carrier/Customer Representative: _____
Signature Date

TEST VEHICLE INFORMATION

Vehicle Model Year and Make: _____
 Vehicle Model and Body Style: _____

1. NOMINAL DESIGN RIDING POSITION –

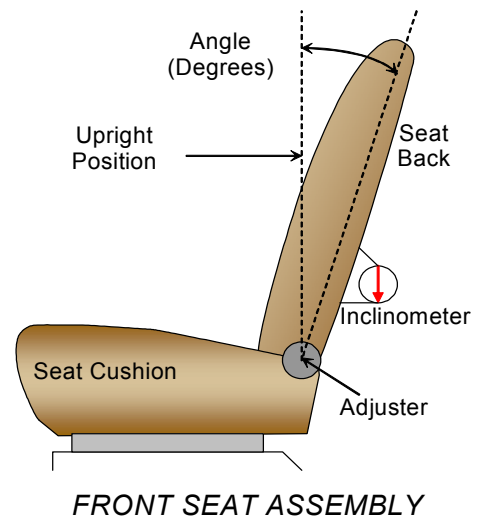
For adjustable driver and passenger seat backs, describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable.

Seat back angle for driver's seat = ____ E.

Measurement Instructions:

Seat back angle for passenger's seat = ____ E.

Measurement Instructions:



2. SEAT FORE AND AFT POSITIONS –

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is to be locked.

Position of the driver's seat:

Position of the passenger's seat (if applicable):

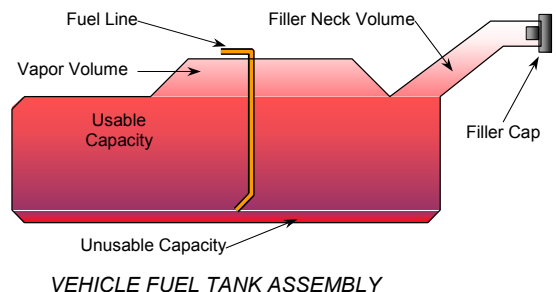
3. FUEL TANK CAPACITY DATA –

3.1 A. "Usable Capacity" of standard equipment fuel tank = _____ gallons.

B. "Usable Capacity" of optional equipment fuel tank = _____ gallons.

C. Capacity used when certification testing to requirements of FMVSS 301 = _____ gallons.

Operational Instructions:



TEST VEHICLE INFORMATION

Page 2 of 2

3.2 Amount of Stoddard solvent added to vehicle for certification test = _____ gallons.

3.3 Is vehicle equipped with electric fuel pump? _____ YES _____ NO

If YES, does pump normally operate when vehicle's electrical system is activated?

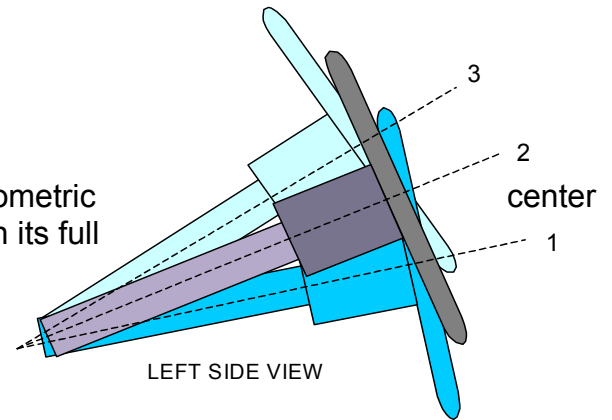
_____ YES _____ NO

4. STEERING COLUMN ADJUSTMENTS –

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric of the locus it describes when it is moved through its full range of driving positions.

If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:



STEERING COLUMN ASSEMBLY

5. SEATING REFERENCE POINT (SRP) –

Provide drawing which shows the driver's SRP location.

6. FUEL TANK LOCATION –

Provide drawing which shows the undercarriage view of the vehicle.

LABORATORY NOTICE OF TEST FAILURE TO OVSC REPORT

FMVSS: 214, SIDE IMPACT PROTECTION

TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: _____; DELV. ORDER NO.: _____

LAB. PROJECT ENGINEER'S NAME: _____

VEH. MY/MAKE/MODEL: _____

VEH. BODY STYLE: _____; BUILD DATE: _____

VEH. NHTSA NO.: _____; VIN: _____

DRIVER SID #: _____; PASS. SID #: _____; IMPACT FACE ID #: _____

TEST FAILURE DESCRIPTION: _____

S214 REQUIREMENT, PARAGRAPH § _____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____ BY: _____

REMARKS:

